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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Stephen M. Geyer

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WASHINGTON, DC 20005

EXAMINER

SETAYESH, CAMERON A

ART UNIT

PAPER NUMBER

3748

NOTIFICATION DATE

DELIVERY MODE

09/30/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/578,435	<b>Applicant(s)</b> GEYER ET AL.	
	<b>Examiner</b> CAMERON SETAYESH	<b>Art Unit</b> 3748	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/05/2006</u>  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 6, 7, 9, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has not disclosed specific structure relating to each of the means for elements in the claims; therefore the metes and bounds of the claims are unclear since it cannot be determined what the structural elements are specifically included in the claims.

Claim 8 is rejected under 35 USC 112 based upon dependency of claim 6.

### ***Notice of 35 U.S.C. 112 sixth paragraph Invocation***

It should be noted to the Applicant that claims 6, 7, 9, and 10 invoke the sixth paragraph of 35 U.S.C. 112. Appropriate action should be taken if this was not intended.

### ***Claim Suggestion***

Examiner suggests revising claim 10 to read as:

Claim 10: The system for turbo-charger surge detection of claim 8, comprising further:  
means for adding a surge margin to said surge mass flow rate.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP Patent No. 03100398A to Iida in view of U.S. Pub No. 2002/0139361 to Itoyama et al (Itoyama).

In reference to claim 1

lida teaches a method of turbo-charger surge detection comprising: measuring a rate of air flow through the outlet of a turbo-charger compressor (2); measuring a temperature (24) of the air flow; calculating a standard mass flow rate (25) of the air flow at the rate and the temperature; measuring a pressure ratio (23 and 22) across the turbo-charger compressor (2); calculating a surge mass flow rate (27) at a surge line of the compressor at the pressure ratio; comparing the standard mass flow rate to the surge mass flow rate (28); however fails to teach measuring a rate of air flow through a turbo-charger compressor and reducing an EGR flow if the standard mass flow rate is lower than the surge mass flow rate. Itoyama teaches measuring an intake air flow, see Figure (2), and reducing an EGR flow if the standard mass flow rate is lower than the surge mass flow rate, see paragraph 46 lines 11-21. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify lida's method of turbo-charger surge detection by incorporating the steps of measuring the flow rate of intake air and reducing EGR flow as taught by Itoyama because by measuring the rate of air flow through the inlet and outlet of the turbo-charger compressor the rate of air flow through the turbo-charger can be measured and the EGR system is only necessary to operate if surging conditions prevail.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP Patent No. 03100398A to lida in view of U.S. Pub No. 2002/0139361 to Itoyama et al (Itoyama), and further in view of U.S. Patent No. 6,220,086 to Andrew et al (Andrew).

In reference to claim 2

lida, as modified in the rejection of claim 1 above, teaches the method of turbo-charger surge detection; however fails to further teach the method comprising: adding a surge margin to the surge mass flow rate. Andrew teaches a method of turbo-charger surge detection comprising: adding a surge margin to the surge mass flow rate, see Figure (2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify lida's method of surge detection by adding a surge margin to the surge mass flow rate as taught by Andrew because if the compressor meets the surging limit the compressor will no longer operate.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP Patent No. 03100398A to lida in view of U.S. Pub No. 2002/0139361 to Itoyama et al (Itoyama) and further in view of U.S. Patent No. 5,560,208 to Halimi et al (Halimi).

In reference to claim 3

lida, as modified in the rejection of claim 1 above, teaches the method of turbo-charger surge detection; however fails to teach the method of turbo-charging surge detection comprising: reducing the pressure ratio by opening a vane of the compressor. Halimi teaches reducing the pressure ratio by opening a vane of the compressor, see column 2 lines 20-26. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify lida's method of turbo-charger surge detection by utilizing a variable geometry vane as taught by Halimi because by opening the vane of the compressor the pressure ratio across the compressor then decreases to keep the compressor from surging.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP Patent No. 03100398A to Iida in view of U.S. Pub No. 2002/0139361 to Itoyama et al (Itoyama) and further in view of U.S. Patent No. 5,560,208 to Halimi et al (Halimi).

In reference to claim 4

Iida teaches a method of turbo-charger surge detection comprising: measuring a rate of air flow through the outlet of a turbo-charger compressor (2); measuring a temperature (24) of the air flow; calculating a standard mass flow rate (25) of the air flow at the rate and the temperature; measuring a pressure ratio (23 and 22) across the turbo-charger compressor (2); calculating a surge mass flow rate at a surge line of the compressor at the pressure ratio (27); comparing the standard mass flow rate to the surge mass flow rate (28); however fails to teach measuring a rate of air flow through a turbo-charger compressor and reducing the pressure ratio by opening a vane of the compressor if the standard mass flow rate is lower than the surge mass flow rate.

Itoyama teaches measuring an intake air flow, see Figure (2). Halimi teaches reducing the pressure ratio by opening a vane of the compressor, see column 2 lines 20-24. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Iida's method of turbo-charger surge detection by incorporating the step of measuring the flow rate of intake air as taught by Itoyama and utilizing a variable geometry vane as taught by Halimi because by measuring the rate of air flow through the inlet and outlet of the turbo-charger compressor the rate of air flow through the turbo-charger can be measured and by opening the vane of the compressor the

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pressure ratio across the compressor then decreases to keep the compressor from surging.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP Patent No. 03100398A to Iida in view of U.S. Pub No. 2002/0139361 to Itoyama et al (Itoyama) and further in view of U.S. Patent No. 5,560,208 to Halimi et al (Halimi), and further in view of U.S. Patent No. 6,220,086 to Andrew et al (Andrew).

In reference to claim 5

Iida, as modified in the rejection of claim 4 above, further teaches the method of turbo-charger surge detection comprising: adding a surge margin (27) to the surge mass flow rate (28), see Figure (1).

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP Patent No. 03100398A to Iida in view of U.S. Pub No. 2002/0139361 to Itoyama et al (Itoyama)

In reference to claim 6

Iida teaches a system for turbo-charger surge detection comprising: means for measuring a rate of air flow through the outlet of a turbo-charger compressor (2); means for measuring a temperature (24) of the air flow; means for calculating a standard mass flow rate (25) of the air flow at the rate and the temperature; means for measuring a pressure ratio (23 and 22) across the turbo-charger compressor (2); means for calculating a surge mass flow rate (27) at a surge line of the compressor; means for comparing the standard mass flow rate to the surge mass flow rate (28); however fails



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to teach a means for measuring a rate of air flow through a turbo-charger compressor and a means for reducing an EGR flow if the standard mass flow rate is lower than the surge mass flow rate. Itoyama teaches a means for measuring an intake air flow (16), see Figure (2), and a means for reducing an EGR flow (13) if the standard mass flow rate is lower than the surge mass flow rate, see paragraph 46 lines 11-21. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Iida's method of turbo-charger surge detection by incorporating the steps of measuring the flow rate of intake air and reducing EGR flow as taught by Itoyama because by measuring the rate of air flow through the inlet and outlet of the turbo-charger compressor the rate of air flow through the turbo-charger can be measured and the EGR system is only necessary to operate if surging conditions prevail.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP Patent No. 03100398A to Iida in view of U.S. Pub No. 2002/0139361 to Itoyama et al (Itoyama), and further in view of U.S. Patent No. 6,220,086 to Andrew et al (Andrew).

In reference to claim 7

Iida, as modified in the rejection of claim 6 above, teaches the method of turbo-charger surge detection; however fails to further teach the method comprising: adding a surge margin to the surge mass flow rate. Andrew teaches a method of turbo-charger surge detection comprising: adding a surge margin to the surge mass flow rate, see Figure (2). It would have been obvious to one having ordinary skill in the art at the time

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the invention was made to modify lida's method of surge detection by adding a surge margin to the surge mass flow rate as taught by Andrew because if the compressor meets the surging limit the compressor will no longer operate.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP Patent No. 03100398A to lida in view of U.S. Pub No. 2002/0139361 to Itoyama et al (Itoyama) and further in view of U.S. Patent No. 5,560,208 to Halimi et al (Halimi).

In reference to claim 8

lida, as modified in the rejection of claim 6 above, teaches the system for turbo-charger surge detection; however fails to teach the system of turbo-charging surge detection comprising: reducing the pressure ratio by opening a vane of the compressor. Halimi teaches reducing the pressure ratio by opening a vane of the compressor, see column 2 lines 20-26. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify lida's system for turbo-charger surge detection by utilizing a variable geometry vane as taught by Halimi because by opening the vane of the compressor the pressure ratio across the compressor then decreases to keep the compressor from surging.

Note: Claim 10 is temporarily examined as suggested above.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP Patent No. 03100398A to lida in view of U.S. Pub No. 2002/0139361 to Itoyama et al

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(Itoyama), further in view of U.S. Patent No. 5,560,208 to Halimi et al (Halimi), and further in view of U.S. Patent No. 6,220,086 to Andrew et al (Andrew).

In reference to claim 10

lida, as modified in the rejection of claim 8 above, teaches the method of turbo-charger surge detection; however fails to further teach the method comprising: adding a surge margin to the surge mass flow rate. Andrew teaches a method of turbo-charger surge detection comprising: adding a surge margin to the surge mass flow rate, see Figure (2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify lida's method of surge detection by adding a surge margin to the surge mass flow rate as taught by Andrew because if the compressor meets the surging limit the compressor will no longer operate.

13. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP Patent No. 03100398A to lida in view of U.S. Pub No. 2002/0139361 to Itoyama et al (Itoyama) and further in view of U.S. Patent No. 5,560,208 to Halimi et al (Halimi).

In reference to claim 9

lida teaches a system for turbo-charger surge detection comprising: a means for measuring a rate of air flow through the outlet of a turbo-charger compressor (2); a means for measuring a temperature (24) of the air flow; a means for calculating a standard mass flow rate (25) of the air flow at the rate and the temperature; a means for measuring a pressure ratio (23 and 22) across the turbo-charger compressor (2); a means for calculating a surge mass flow rate at a surge line of the compressor at the

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pressure ratio (27); a means for comparing the standard mass flow rate to the surge mass flow rate (28); however fails to teach a means for measuring a rate of air flow through a turbo-charger compressor and a means for reducing the pressure ratio by opening a vane of the compressor if the standard mass flow rate is lower than the surge mass flow rate. Itoyama teaches a means for measuring an intake air flow (16), see Figure (2). Halimi teaches a means for reducing the pressure ratio by opening a vane of the compressor, see column 2 lines 20-24. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Iida's system for turbo-charger surge detection by incorporating the means for measuring the flow rate of intake air as taught by Itoyama and utilizing a variable geometry vane as taught by Halimi because by measuring the rate of air flow through the inlet and outlet of the turbo-charger compressor the rate of air flow through the turbo-charger can be measured and by opening the vane of the compressor the pressure ratio across the compressor then decreases to keep the compressor from surging.

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pub No. 2003/0192516 to Brunemann et al, U.S. Patent No. 6,401,457 to Wang et al, U.S. Patent No. 6,279,551 to Iwano et al, U.S. Patent No. 6,298,718 to Wang, U.S. Pub No. 2003/0051475 to Allen et al, U.S. Pub No. 2002/0043066 to Finger et al, and U.S. Pub No. 2006/0042608 to Buck et al

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAMERON SETAYESH whose telephone number is (571)270-3971. The examiner can normally be reached on Monday - Friday 8:00am-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571)272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CAMERON SETAYESH/  
Examiner, Art Unit 3748

/Thomas E. Denion/  
Supervisory Patent Examiner, Art Unit 3748